

What is claimed is:

1. A high-speed search method in a speech encoder using an order character of LSP (Line Spectrum Pair) counts in a LSP count quantizer using SVQ (Split Vector Quantization) used in a low-speed transmission speech encoder, the high-speed search method comprising the steps of:

rearranging a codebook according to an element value of a reference row for determining a range of code vectors to be searched;
and

determining a search range by using an order character between a given target vector and an arranged code vector to obtain an optimal code vector.

2. The high-speed search method as claimed in claim 1, wherein the rearranging step comprises the steps of:

selecting the reference row in each codebook by using a plurality of voice data, and then determining an optimal arrangement position (N_m) in which an average search range is minimized; and

replacing the codebook with a new codebook in which a number (L_m) of code vectors in the codebook are arranged in a descending order according to an element value of the selected reference row.

3. The high-speed search method as claimed in claim 1,
wherein the code vector-obtaining step comprises the step of:

determining the search range by forward and backward
5 comparison of the element value of the reference row in the arranged
codebook and element values of rows before and after the target vector;
and

obtaining an error criterion ($E_{l,m}$) having high computational
complexity by using the below Equation 2 only within the determined
10 search range.

4. The high-speed search method as claimed in claim 3,
wherein the search range is an average number with which an
element value of the n^{th} row in the arranged codebook and element
15 values in the $n+1^{\text{th}}$ and $n-1^{\text{th}}$ positions of the target vector satisfy the
order character.

5. A high-speed search method in the G.729 fixed codebook
with decreased computational complexity without loss of tone quality,
20 the high-speed search method comprising the steps of:

arranging position indexes of tracts (t_0, t_1, t_2) in a descending
order according to a correlation level ($d'(n)$);

determining a range to search a tract (t3) according to the indexes arranged in a descending order; and

canceling the detecting and searching processes for indexes which has low probability.

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6. The high-speed search method in the G.729 fixed codebook as claimed in claim 5, wherein the arranging step comprises the step of:

comparing correlation vectors of all of the pulse position indexes in each track to arranging the position indexes in a descending order.

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7. The high-speed search method in the G.729 fixed codebook as claimed in claim 5, wherein the search range-determining step comprises the steps of:

adding correlation values of each pulse position index for the pulse position index combination of the tracks (t₀, t₁, t₂); and

comparing the added result with a threshold (Cth) determined before the search of the fixed codebook to search track (t3) using an added result more than the threshold.

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8. The high-speed search method in the G.729 fixed codebook as claimed in claim 5, wherein the canceling step comprises the step of:

canceling the searching process for the range where the added

result is less than the threshold.